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The Agriarian

OFFICIAL STUDENT PUBLICATION



MARCH 1948

CLEMSON, S.C.

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EXPERIENCE'
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The Agrarian

OFFICIAL STUDENT PUBLICATION

VOLUME 7

THE CLEMSON AGRICULTURAL COLLEGE

NUMBER 3

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SUBSCRIPTION FREE

COVER — A pastoral country scene at the foot of the Blue Ridge Mountains in the northwest corner of the state. Photograph by J. Kenneth Eargle, South Carolina Agricultural Extension Photographer.

PICTURES on pages 11 and 19 through courtesy of South Carolina Agricultural Extension Service.

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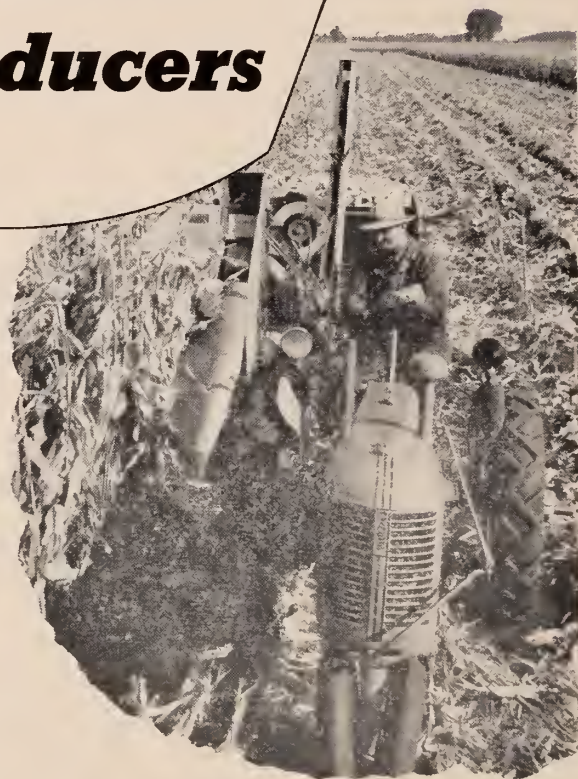


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CASE ..



Vocational Opportunities in Agriculture

Extracts From A Talk Made by Mr. R. A. McGinty,
Vice-Director South Carolina Experiment Station

As a background for what I will say about vocational opportunities in agriculture it is desirable that the importance of the agricultural industry be realized. All of us, I am sure, appreciate the fact that the providing of food and the materials for clothing and shelter for all people is a big job, but just how big is it? In the United States one-fifth of our population is engaged directly in agriculture and in the South twice as many, or two fifths. This does not include those involved in processing, and marketing agricultural commodities, nor those in professional work related to agriculture.

One hundred and fifty years ago Malthus, an English economist, expressed the belief that eventually the population of the world would become so large, it would be difficult to produce sufficient food to feed all the people. However improvements in farm implements, the introduction of more productive varieties and the use of chemical fertilizers came along and Malthus' theory was more or less forgotten. Recently the great number of hungry people in the world has revived the idea that perhaps after all the time may come when there will not be enough food for everybody.

At present three-fourths of the world's population follow agricultural pursuits - yet a large proportion of this population exists, and did before the war, on a diet bordering on starvation. In a land of abundance like the United States it is hard to realize this. In Mexico, a country next door to us, authorities say that 50 percent of the people suffer from inadequate diets and in China and India starvation and malnutrition are notorious. In spite of all this the world's population continues to increase.

In order that agriculture may provide us with food and other essen-

tials and that the engineering, chemical, textile, and other industries may furnish us with things we want and need, trained men—educated men—are necessary. It has been said that prisons and penitentiaries are full of educated men but I do not consider that an argument against attending college.

Someone has said that a college education seldom hurts a man if he is willing to learn a little something after he graduates. You are all going to be college-bred young men and I assume that all of you are reasonable serious minded about work here and the opportunities that lie before you; that you have a Christian outlook, are honest and would like to render service to your fellowman when you go out into the world to make a living; and that your dealings with others in the business or professional world will be straightforward and upright.

In deciding upon a vocation you may be determining whether you are going to be happy and successful or otherwise. I have always felt that it is important for one to get into some kind of work which he likes. Again I assume, that he will like work which is honorable and that will have no harmful influence upon his fellowman.

One thing to remember is that success is not attained by staying awake at night but by staying awake in the daytime. There are various standards by which success is measured. It is usually thought of in terms of material things, but one author, Edgar Guest, expressed the idea that "it's service that measures success".

Well, what about these vocational opportunities in agriculture? The word, agriculture, suggests farming which is an important vocation as I have already pointed out. Its attractiveness as a vocation is increasing

with mechanization which greatly reduces the drudgery, and science which makes the final results more certain. If you like to live in the country, farming is one of the most satisfying of occupations. However a farmer needs to be smarter today than was once the case. As Philander Knox says—

"A farmer has to know the way
The markets go from day to day,
And how to read a statesman's
mind
And speak his own in phrase re-
fined;
Each evening he must read anew
Psychology and science too,
And study maps of isotherms
And the geneology of germs,
Figure out the laws of chance
And economics and finance.
A farmer I should like to be,
The blissful hope is not for me;
It isn't that the road's so rough,
I simply do not know enough."

Farming is only one of the many vocations open to those trained along agricultural lines. Other vocations include such lines as research, teaching, and extension as well as many opportunities for agricultural graduates in private businesses. Altogether there is a great variety of opportunities open to the man trained along agricultural lines. The demand for men is great at present and seems likely to continue for a considerable time to come. One thing I thoroughly believe is that there is always a demand for good men. Even in times of depression good men can get jobs although there may be no place for the mediocre.

What is the difference between a good man and a mediocre one? Part of it depends on native ability and other inherent qualities, but much depends upon things which any individual, whether above average in na-

(continued on page 22)

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SAFETY AT HOME AND ON THE FARM



Farming Is A Dangerous Occupation That Can Be Made Much Safer by Little More Thoughtfulness

CLYDE R. ALLEN
Agricultural Engineering 1949

Safety demands thinking before acting. Most accidents occur as a result of carelessness on the part of the individual. Now that the war is over we must turn our attention toward safety at home. It is sad indeed that each day so many of our farm people are destined to die or to be badly injured by acts of carelessness. With the increase in farm machinery and power tools there has come a definitely large increase in the number of farm accidents. The number of injuries inflicted due to careless handling of farm machinery has surpassed those attributed to farm animals. The greatest number of accidents on the farm occur as a result of falls. Some of the other causes in order of their percentages are: machinery, animals, and heat exhaustion. The best method of combatting these hazards is by education of the individuals involved.

Farming can be a dangerous occupation. Unless the proper precautions are taken at the time needed, a serious or even fatal accident may occur. Statistics show that one fourth of all the persons killed in occupational accidents are farmers. These records may be partially explained by the fact that tractors are more dangerous than automobiles, and farm machinery is more deadly than industrial machinery. With the increase in production of farm machinery we must enact more and better safety precautions in order to make life safer. The farmer is a "Jack-of-all trades", and therefore, his safety precautions should cover a wider range than those precautions of men in other professions.

The Bureau of Agricultural Economics of the United States Department of Agriculture made a survey of accidents on 15,000 farms in January of 1947. The accidents re-

ported included all injuries to the persons living or working on farms covered in the survey. Medical expenses resulting from these accidents amounted to approximately \$40 for each person injured. The average time lost by each person injured was about three weeks. The survey indicated that eight percent of all the injuries were in the northeastern states, ten percent in the western states, and thirty-eight percent in the



Careless handling of farm machinery causes many accidents each year.

southern states. From these figures we can readily see that the South has much room for improvement in the field of farm safety. The accident death rate per 100,000 population in the United States is almost double that of other countries and is exceeded by only one other country, Chile. According to a census taken by Mr. John D. Rush, Agricultural Economist, Department of Agriculture, Washington, D. C., an average of forty-five to fifty farm people are killed by farm accidents in the United States each day. An annual death toll of 17,000, and an annual injured list of 1,500,000 is reported. About one-third of the farm people killed in accidents are mortally injured while doing agricultural work, and most of these accidents come about as the result of carelessly handling farm machinery.

"What goes up must come down." In the process of climbing on build-

ings or on ladders, the speed at which one returns to the ground is usually left up to the individual. Everyone should be especially careful when climbing. Falls injure more farm people than any other kind of accidents, and falls on stairs and steps or from vehicles are the most common. Most of the common falls result from carelessness.

Farm tractors are involved in about one-third of the accidents dealing with farm machinery. The farm tractor is a great asset to the farmer, and yet it is a very dangerous machine. Some of the safety rules which should be regarded while operating a tractor, as compiled in the Texaco Farm Manual, are as follows:

1. Be sure the gear shift lever is in neutral before cranking the engine.
2. Always engage the clutch gently, especially when going up hill or pulling out of a ditch.
3. When driving on highways, or to and from fields, be sure that both wheels are braked simultaneously when making an emergency stop.
4. Always ride on seat or stand on platform of tractor. Never ride on drawbar of tractor or drawn implement.
5. When going down steep hills or grades, always keep the tractor in gear.
6. Always drive tractor at speeds slow enough to insure safety, especially over rough ground or near ditches.
7. Reduce speed before making a turn or applying brakes. The hazard of overturning the tractor increases four times when the speed is doubled.
8. Always stop power take-off before dismounting from the tractor.
9. Never dismount from tractor when it is in motion.
10. Do not put on or remove belt from belt pulley while the pulley is in motion.

(continued on page 22)

Outstanding Ags of The Month

This month The AGRARIAN is proud to introduce you, the reader, to seven students from the School of Agriculture who have been chosen by their classmates in their various departmental clubs as having contributed much to the advancement of Clemson College.

J. Gilbert Hardee

J. Gilbert Hardee, Agricultural Economics senior of Loris, S. C., is one of the most outstanding students at Clemson.



Gilbert entered Clemson in the fall of 1942. As a freshman he won the National Danforth Fellowship and was awarded a trip to the American Youth Foundation Camp near Shelby, Michigan. After completing his sophomore year he entered the Navy where he served for eighteen months. He returned to Clemson in September of 1946 and was elected president of the junior class. He has since received many honors and has proven himself a leader in the truest sense of the word. Besides serving as president of the junior class Gilbert is also president of the South Carolina and local Baptist Student Union, Scribe of Alpha Zeta, member of Block "C", Editor of the Blue Key Directory, member of the Senior Council, member of Blue Key and Tiger Brotherhood, Secretary of the Economics Club, member of the YMCA Cabinet, sings in the Glee

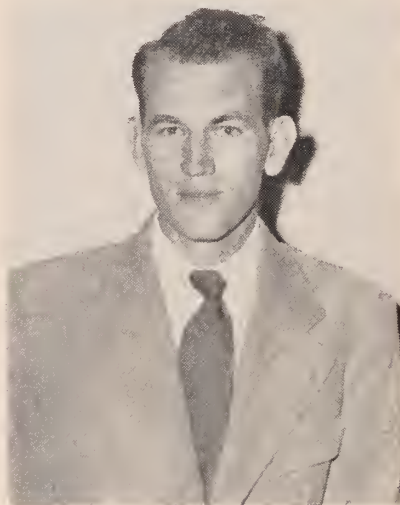
Club, and is listed in "Who's Who Among Students in American Colleges and Universities".

Gilbert plans to do graduate work, perhaps at Clemson, after his graduation in June.

Among his outstanding attributes are his genuine sincerity and his high sense of values. He possesses qualities of leadership not often found in college students.

Lewis F. Cato

Lewis Cato entered Clemson as a freshman in September, 1946. He came to Clemson directly from Monetta High School. His college education was interrupted in his "rat" year when he was called to the service and joined the Army Air Force. After his training in the states, he was sent to Italy, where he made thirty missions as a navigator on a B-24 bomber.



Lewis is married to the former Miss Julia Antley of Orangeburg. They have a son that is two months old. He is majoring in Animal Husbandry and is President of the Animal Husbandry Club. He was recently initiated into Alpha Zeta.

His plans for the future are indefinite but as soon as facilities become available he hopes to enter the School of Veterinary Science at Auburn.

David C. Settle

David Settle, who is a senior majoring in Horticulture, hails from Inman, S. C., in the heart of the peach section of Spartanburg County. After serving with the Army in the Philippines, David returned to take up his work in Horticulture at Clemson and has distinguished himself in a number of ways.



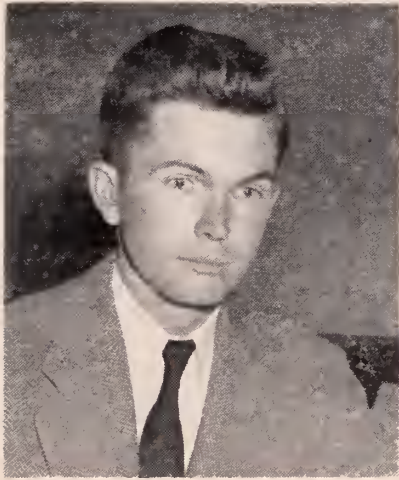
Since returning he has been living at the Horticulture Greenhouse where he works in his spare time. Through his work at the greenhouse he is gaining immense amounts of practical experience which will be invaluable to him in later years.

David is now president of the Horticulture Club and has made honors in his scholastic work for the last several semesters.

Upon completion of his work in June, Settle plans to return to Inman and go into the peach orchard business.

Ernest B. Rogers

Ernest Rogers came up from Sumter, S. C., to enroll at Clemson in 1941. After spending two years here he was called into service. He served in the Air Transport Command as radio operator for thirty months before receiving his discharge to return to Clemson, where he resumed his studies in the field of Agricultural Engineering.



Ernest is now president of the local branch of the American Society of Agricultural Engineers and is a former member of The AGRARIAN staff. He has also been a member of the Sumter County Club and YMCA Councils.

He will graduate in June and plans to go into the farm implement business near Sumter.

Richardson M. Hanckel

Richardson Hanckel entered Clemson as a lowly "rat" from Charleston in September, 1944. It wasn't long before his nickname of "Sonny" became universal all over the Clemson campus whenever and wherever he was spoken to. Although it is not known where this nickname originated it is assumed that he acquired it through his radiant and cheerful personality. "Sonny" is one



person whom you can truthfully say always has a smile on his face.

Since coming to Clemson, "Sonny" has been very outstanding in various extra-curricula activities. He is now president of the Dairy Club and Beta Sigma Chi as well as being chairman of the School of Agriculture's exhibits in the coming "Clemson On Display". "Sonny" is also a member of the Canterbury Club and Alpha Phi Omega in addition to being past Feature Editor of The AGRARIAN.

He hopes to enter the University of Missouri for graduate work in dairy products upon graduation from Clemson in June. After spending a year there he is going into business with his father at Coburg's Dairy in Charleston.

Samuel O. Tomlinson

Samuel O. Tomlinson, Vocational Agricultural Education senior of Olanta, began his collegiate career at Clemson in September of 1938.



This outstanding senior completed two years at Clemson before accepting the position of Estimator of Materials for the United States Engineers with his office in New York City.

Sam entered the Air Corps in August of 1942 where he served with a radar outfit until he was discharged in November of 1945. Tomlinson re-entered Clemson in September of 1946 and is a candidate for graduation in June.

The Olanta senior has been active while at Clemson, participating in

the activities of the Horticulture Club, Future Farmers of America, the Sophomore Y Council, and is now president of the Kappa Chapter of Alpha Tau Alpha.

Upon graduation this Vocational Agricultural Education graduation candidate will teach vocational agriculture in one of the high schools of the state.

He is now teaching veterans at Keowee in his spare time.

Ray C DuBose

Ray's sterling character and amiable personality has won him many friends while at Clemson.

Ray came to Clemson as a transfer student from Wake Forest to major in Agronomy. Between the change of schools he spent five years in the Army Air Corps where he served in the European Theater of Operations.

While at Clemson Ray has entered the "limelight" by having attained a high scholastic record and by having done outstanding work in extra curricula activities. As evidence of this, Ray served as vice-president of Kappa Alpha Sigma, vice-president of the Veterans Executive Committee, and censor of Alpha Zeta while at Clemson. Speaking strictly scholastically Ray is also a member of Phi Kappa Phi, national honorary scholastic fraternity; this membership is coveted by every member of the Clemson student body.

A native of Lamar, he plans to work in the fertilizer industry upon graduation.



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South Carolina

Research and Marketing Act

South Carolina Will Benefit from This Legislation Which Provides Funds for Research in Agriculture

JOHN F. ALEXANDER
Agricultural Economics 1949

Our people are indeed wise to have recognized anew the importance of agriculture to the success of our country. Through their elected representatives they have had enacted national legislation which provides additional funds for research into agricultural problems, particularly in the field of marketing. This act should do much to strengthen our agriculture and thereby the entire nation. The Research and Marketing Act (this is its official title) was approved August 14, 1946 as an amendment to the Bankhead-Jones Act. It is an act "to provide for further research into basic laws and privileges relating to agriculture and to improve and facilitate the marketing and distribution of agricultural products."

Because it is essential to our people to have a satisfactory and prosperous agriculture, and because Congress has made it possible for agriculture to have a place in research more comparable to that enjoyed by large scale industry, the Secretary of Agriculture has been authorized to conduct research into the following: the newest methods of production, marketing, distribution, processing, and utilization of plant and animal commodities from the producer to the consumer; human nutrition; present and new markets for products; new crops, plants, and animals; better use of our resources; the conservation and development of land, forest, and water resources for farm purposes; the design and development of more efficient farm buildings, machinery, and homes; diversification of farm enterprises; and any laws and principles that may contribute to make a more effective and permanent agriculture.

Under provisions of this Act the South Carolina Experiment Station received \$66,628 for research for the fiscal year 1947-48. For July 1948-

49 the hope is that this amount may be doubled.

To assist in the utilization of the funds under the Research and Marketing Act there is a "Committee of Nine" elected by the Experiment Station Directors and approved by the Secretary of Agriculture. Their duties are to examine and screen all projects suggested, and to select those which seem to be the most promising from the standpoint of improving the agriculture of an area or region. Mr. R. A. McGinty, Vice-Director of the South Carolina Experiment Station here at Clemson, is one of the two southern representatives of this nine man committee. The other seven representatives are from the north central, eastern, and western agricultural regions of the United States. Mr. McGinty has just recently been to Washington, D. C. to help determine the allocation of \$1,240,000 for regional research projects. The southern states experiment stations can expect to receive about one-fourth of the amount assigned for the fiscal year 1948-49, Mr. McGinty says.

Among the projects undertaken at the Clemson Experiment Station through support of these new research funds may be mentioned one to study the costs and efficiency of marketing cotton. Twenty areas of South Carolina are being studied to determine the influence of free classing service on marketing practices, and the extent mill buyers are responding to the efforts of farmers to produce better milling cotton. Another project is one to study economic losses due to spoilage in marketing of early Irish potatoes. This project, like the cotton project, is on a regional basis, that is, several states are cooperating in it. The re-

gional project has certain advantages. Among them is the fact that it makes possible observation of marketing practices in consumer areas as well as in production centers. The Irish potato project is set up to study spoilage in transit, the importance (if any) of washing and drying the potatoes; influence of field practices (such as leaving in the sun too long) upon losses; and which varieties stand up best and sell best in the northern markets.

Other Research and Marketing projects have to do with eggs, tomatoes, and watermelons. The study of egg market problems centers chiefly in the spring months when there is usually a surplus. Grading of eggs, storage during surplus season, processing—all these will be studied under this project. The egg and poultry problem will come to be more important as cotton gives way to other agricultural enterprises. Another project is one in which certain areas are selected and their capacity to produce and consume determined. At present there is a study of the Upper Piedmont to determine the amount of food and grain products produced and consumed. An effort is being made to determine savings, if any, which could be effected by storing during certain seasons so as to reduce cost of shipping out feed grains which later have to be shipped back into the county as mixed feeds. Altogether 18 new projects, attacking the same number of perplexing farm problems are in operation in South Carolina alone as a result of this new Research and Marketing Act. Each project studied and each problem that is encountered and corrected means a much better life for some farmer, and in turn for his fellow man. This Research and Marketing Act shows signs of the fundamentals of a good agricultural policy in striving to establish equality for agriculture.

Frozen Foods in South Carolina

Freezer-Locker Industry Expands in This State as Farmers Discover Easy Way to Save Farm Meats

By HARVEY Z. WOODFIN
Animal Husbandry 1948

The purpose of the cold storage locker is to freeze and store properly prepared meats, fruits, and vegetables for future consumption, preserving to the greatest possible extent the freshness of the product. The particular kind of service rendered by a locker plant is reported to have started on the Pacific Coast about 1903. The first one was for merchants only, but in 1908 the plant extended its services to farmers for the storage of meats in boxes. The number of freezer lockers has increased constantly from this early beginning. The July, 1945 estimate of locker plants operating in the United States was 6,464, representing 48 states. This represents an average annual increase of 410 percent from 1938 to 1944.

Preserving foods by freezing is increasing rapidly in South Carolina as more community frozen food locker plants are constructed and home freezers become available. There are fifty-five locker plants serving twenty-five thousand families. Many more are needed at the present time.

Meat and meat products now constitute a large part of the foods stored in frozen food lockers. The standard commercial locker contains about six cubic feet of space, and will accommodate between 250 and 300 pounds of carefully packaged and packed meat. The average family of five will consume about 700 pounds of meat during the year, which means that if the locker is to be used for poultry, fruit, and vegetables, as it should be, the handling of the products to be stored must be distributed through the year as much as possible. It is often advisable to rent additional space for a short period to take care of the fruits and vegetables because their harvest is seasonal.

Livestock is raised on nearly all farms, and where livestock is produced, at least part of the home

meat supply should also be produced. Healthy, well-finished animals provide the best quality meat for storage. Only animals showing good quality and finish should be slaughtered for home use. Freezing food will not improve it, and food removed from the freezer is no better than that which went into it, therefore careful selection of products is very important.

Beef, pork, veal, fish and game can be frozen conveniently. Freeze selected cuts which are high in percentage of meat and tender in quality. Meat cuts high in bone content should be boned and ground in order to conserve locker space. Cured and smoked cuts are being frozen in some plants. Storage should follow "sharp freeze" temperatures, and the meat must be wrapped carefully and sealed in moisture proof wrapping to prevent the spread of the odor.

A clean job of slaughtering is very important. Bruised meat does not keep well and should be trimmed. Dirty meat should be cleaned before putting it in the locker. Open the body cavity or split the carcass, and, in hogs, pull out the leaf fat before chilling.

The freshly-slaughtered carcass should be chilled promptly to a temperature just above freezing. Failure to chill beef promptly may cause souring in the deep-seated hip joint of the round. Hams often sour if pork carcasses are not chilled promptly. Chilling temperatures usually recommended is 32° F. for 36 to 48 hours. This chilling is done before the meat is frozen.

Beef, lamb, and mutton will become more tender if they are aged in a chill room at 32° to 34 degree F. for a week or ten days after slaughter. Only animals or cuts with ample

fat covering should be aged. Low-grade, lean carcasses permitted to hang at these temperatures will putrify rather than tenderize. Meats lacking in fat should be frozen immediately after chilling. It is not wise to age meat for unduly long periods because some tenderizing occurs during the period of frozen storage. When meat is aged too long, mold develops on the lean surfaces and produces undesirable odors and flavors.

The size of roasts, the thickness of steaks and chops, and the amount of ground meat should be adapted to size of the family or the amount that can be used at one time. In order to save space large bones should be cut out where possible. Good-quality steaks are cut an inch or an inch and one-half thick because thin steaks dry out too much if stored very long. Ground meat is not as well suited to prolonged freezer storage as is unground meat. Ground meat should not contain sodium chloride (salt), but all other seasoning may be added. Salt increases oxidation in ground meat and causes rancidity.

The quality of frozen meat depends greatly upon how it is wrapped and stored. After the meat is cut into individual pieces, it should be immediately wrapped in moisture-resistant paper. After the meat is packaged, it should be tied firmly or sealed with gummed tape. The name of the cut, the date, and the locker number should be stamped or written on each package. Good quality wrapping paper should be used as it is not expensive and will save meat loss.

After the meat has been carefully packaged, it should be placed immediately in the freezer. Spoilage of meat may be very rapid if it is allowed to warm up and sweat for a considerable time. The meat should be quickly frozen in a room with a



One of the many freezer-locker plants now in use all over South Carolina

temperature of -20° F. or possibly colder. This room is called the quick freezing room. Quickly frozen meat more nearly resembles fresh meat, after thawing than does the slowly frozen product. The locker room temperature should be kept at 0 degree F. and not allowed to vary more than a few degrees because if temperatures as high as 10 degrees to 15 degrees F. are used, the fats turn rancid and the product is often unsatisfactory. If the temperature cannot be held lower than 15 degrees F., pork should be used within two months and beef, veal, and lamb be arranged so that the desired packages may be removed with a minimum of sorting and handling.

Meat begins to thaw as soon as it is removed from the freezer locker. This causes the meat to be very wet and offers a very good place for harmful bacteria to grow. This means that the meat should be cooked as soon as possible after it thaws out.

If the meat is properly cooked, the taste will not vary much regardless of how it is thawed—slowly, rapidly, or cooked without thawing. If meat is cooked without thawing, care must be taken to cook the meat thoroughly as the meat requires some time to thaw and then cook all the way to the center. Frozen meat requires from 22 1/2 hours per pound to thaw when it stands at room temperature. One practice to remember is not to remove the wrap-around until it is to be used.

Many home freezer units are now on the market. They can be used very efficiently along with the large locker plants. The home freezers

are not large enough to freeze much meat at a time but will hold the meat after it is frozen.

Less labor is required in freezing meats than in curing or canning them. Experiments show that there is very little loss of nutrients in frozen

meat. It is easy to see therefore why freezer lockers are being built all over the state at the present time and probably within a short time the freezer locker industry will become a major industry in South Carolina.

Lesson for after School



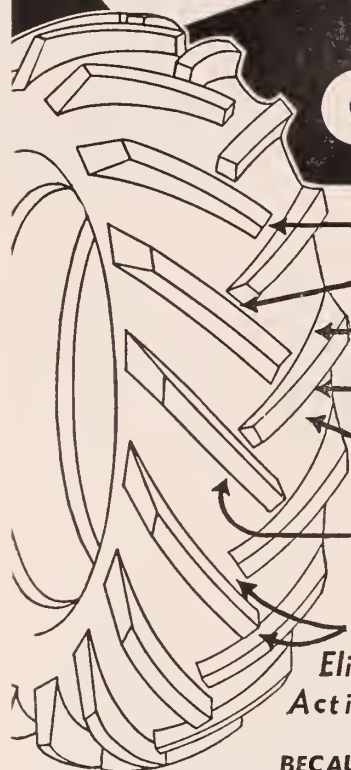
Standards for livestock are constantly improving. Breeders are developing better strains of meat animals—new feed and fodder crops are being discovered. These scientific advances are reflected in the prize animals shown at the yearly, great International Live Stock Exposition in Chicago, at similar large exhibitions in other sections of the United States, and at State and County Fairs throughout the country. Visit these shows frequently while you're still in school. It's part of your education. And keep up the habit after you have left school—for at these shows you will see the patterns for the animals you must raise to keep abreast of the market.

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LET THE TEST TELL THE TRUTH

George M. Armstrong

Botanist - - - Adviser - - -

Thoroughbred Clemson Man



George M. Armstrong, head of the Botany and Bacteriology Department was born at Appleton, S. C., in Allendale County. He was one in a family of seven children who received their schooling in a one room, one teacher school house. Perhaps it was this early association with the country and country life that caused Dr. Armstrong to become so intensely interested in plant studies.

Dr. Armstrong entered Clemson as a freshman in 1910 and decided to capitalize on his early experience so he chose as his major course, Agronomy. Dr. Armstrong states that his college years passed all too quickly and the summer of 1911 found him with a B.S. degree from Clemson. Upon graduation he continued his line of work and became a graduate assistant in Plant diseases in the Botany Department. His interest in Plant Pathology led him to accept this job at the salary of \$40.00 per month.

Through his experiences at Clemson as an assistant in the Botany Department he got a fellowship to teach and work on his masters' degree at the University of Wisconsin. After receiving his degree he returned to Clemson and taught for one year before the war came along and interrupted his plans.

After this period of interruption he returned to Washington University at St. Louis, Mo. to get his Ph.D degree. He completed his work there in 1921 and liked it so well that he stayed on to teach for three years. The saying "once a South Carolinian always

By FRED K. NORRIS
Agricultural Engineering 1949

a South Carolinian" held true in his case and in 1924 Dr. Armstrong came back to South Carolina, this time working with the Experiment Station at Florence where he was head of the Boll Weevil Control Division which was a new department then, since the boll weevil menace had just begun. His work along this line lasted over a period of five growing seasons.

In September of 1928 Dr. Armstrong was reassigned; this time as head of the Botany and Bacteriology Department.

Dr. Armstrong's intent interest in research has led him to write numerous bulletins and books on subjects ranging from Plant Physiology and Pathology to Agronomy and studies of Cotton Fibers. He states that he likes to teach too, but nothing beats "piddling in the lab".

Not only has Dr. Armstrong excelled in the research field but also has excelled in his professional field. He is a member of the American Association for the Advancement of Science, The American Phytopathological Society, The American Society of Plant Physiology, the Botanical Society of America and a member of the South Carolina Academy of Science.

Speaking of honor fraternities, Dr. Armstrong has also done himself proud in this respect. He is a member of Phi Kappa Phi (National) Honor Fraternity and Sigma Xi

(Honor Science Fraternity for graduate students). He is also a member of Phi Sigma (Honorary Biological Fraternity) and is one of the most faithful faculty members of Alpha Zeta (the National Honorary Agricultural Fraternity) that there is at Clemson. Nearly every meeting finds Dr. Armstrong there as a visiting faculty member to advise the boys whenever he can. He has also been faculty adviser for Alpha Zeta at one time or another for at least six years.

His interest in community work has led him to take an active part in Boy Scout work. In addition he is a member of the Fellowship and Rotary Clubs.

Dr. Armstrong is another Clemson man who has done much for Clemson through his years of service as teacher, adviser, and community citizen.

Among Our Alumni

1942

J. C. Holliday is now in graduate school at V. P. I. and is going to Washington State College next year to work towards his Ph. D.

1943

St. Clair A. Knight is agricultural engineer with Duke Power Co. in Spartanburg, S. C.

1945

A. H. Maybin is teaching in the State Institute of Agriculture at Farmingdale, N. Y.



BETWEEN THE

KRESS FUND SPEAKER

Dr. Charles A. Shull, nationally known plant physiologist who was formerly at the University of Chicago, will be at Clemson on April 19, 20, and 21 to present a series of lectures under the auspices of the Kress Fund Committee.

In addition to a general lecture to which the public is invited titled "Problems in Human Nutrition", Dr. Shull will also present a series of lectures to groups of students and faculty from the School of Agriculture. The lecture before the general public will be sponsored jointly by the Kress Fund Committee and the Fellowship Club. The student lectures will be sponsored jointly with the local chapter of Alpha Zeta.

The first topic to be delivered before a joint student-faculty group will be "Modern Trends in Plant Physiological Research". The other lectures are to be given before joint meetings of the agriculture departmental clubs and are entitled "Modern Trends in Plant Physiological Research", "Organic Gardening", and "Water Dynamics of the Soil-Plant-Atmosphere System."

Dr. Shull will come to Clemson from Asheville, North Carolina, where he has been living since his retirement from the faculty of the University of Chicago.

DR. W. R. PADEN NAMED TO HIGH POST

Dr. W. R. Paden, agronomist with the South Carolina Experiment Station at Clemson, was recently named to the National Soil and Fertilizer Research Committee. This is a committee composed of six representatives from state experiment stations and four members of the United States Department of Agriculture. Dr. Paden will assist in making recommendations to the state experiment stations on soil and fertilizer research problems. He is one of two men from the South who were selected for the appointment.

McGINTY RETURNS FROM WASHINGTON

Mr. R. A. McGinty, vice-director of the South Carolina Experiment Station at Clemson, returned recently from a trip to Washington where he attended a meeting of the Committee of Nine, a national group which allocates funds for regional research projects under the Research and Marketing Act. In this meeting the committee had as its duty the allocation to state experiment stations of the United States, \$1,240,000 for research projects in 1948-49. It is not known at this time exactly how much Clemson and South Carolina will get of this fund but it is assured by high officials that Clemson will get its share.

Mr. McGinty was one of two representatives from the South who attended this meeting, the other seven committee members being from Eastern, North Central and Western agricultural regions of the United States.

NEW GREENHOUSES

Modern new greenhouses will soon greet floriculture students at Clemson. The Horticulture Department is constructing two new greenhouses, 100 feet by 32 feet, to be used primarily by students in floriculture lab work. The buildings will be completed and put into use this summer.

Also included in the buildings is a new greenhouse for use by the Botany and Bacteriology Department in Plant Physiology and Plant Pathology work.

ALPHA TAU ALPHA OFFICERS

S. A. Tomlinson was moved up to president in a recent election held by the Kappa chapter of Alpha Tau Alpha. Tomlinson was formerly first vice-president and this move was effected by the graduation of C. S. Beam, former president. J. T. Black was moved up from second vice-president to the position of first vice-president and D. K. Stokes was elected to fill this position.



FURROWS

A.S.A.E. ENTERTAINS GEORGIA

The South Carolina student branch of the American Society of Agricultural Engineers was host to the Agricultural Engineering students and faculty of the University of Georgia at a banquet held in the Clemson College dining hall recently. A tour of the campus was held in the afternoon after which a turkey dinner was enjoyed. This meeting was the first of its kind ever held at Clemson.

E. B. Rogers, president of the local branch of ASAE, acted as master of ceremonies at the banquet. Among the distinguished guests introduced from Clemson were Dr. R. F. Poole, president of Clemson College, and Mr. J. M. Eleazer, Information Specialist for the South Carolina Extension Service, who is well known all over the South for his interesting column.

Mr. James F. Forehand, president of the Georgia branch of ASAE, introduced the faculty members and distinguished guests from the University of Georgia. Included among these were Mr. U. H. Davenport, professor for the past fifty years at the University of Georgia, and Clemson graduates L. O. Drew and D. T. Kinard.

Also present was Mr. W. E. Hudson, associate professor of Agricultural Engineering at the University of Georgia, who made a short address. The program also included a musical act by Bobby Mace and Fred Norris and a comedy act by Frank Lucius after which the meeting was adjourned.

JUDY HEADS ECONOMICS SOCIETY

Lamar T. Judy, agricultural economics junior from Orangeburg was elected president of the Clemson Economics Society at a recent meeting held at Dr. Ferrier's home. Other officers of the club elected at this time were J. O. Gerald, agricultural economics senior of Loris, vice-president; and J. D. Duncan, agricultural economics junior of Loris, secretary.

CLEMSON ON DISPLAY

This year as twice before in its history Clemson is to put its best foot forward and dress up in preparation for the two days in which time the various schools will present demonstrations and exhibits showing to the public exactly what is being done in that department at the present time. The dates for this "revelation to the public" have been set for May 8 and 9 and is to be called "Clemson On Display for Mother's Day". The majority of the various schools at Clemson will be participating but as in years past the School of Agriculture will take the major part because of the fact that it is better equipped to put on such a project.

The program to be presented by the School of Agriculture promises to be a most interesting and enjoyable one. Each of the departments has already started work on its projects as follows:

Agricultural Engineering: A display of the most modern and up-to-date farm machinery available today.

Agricultural Economics: Exhibits and charts depicting the status of the farmer in the world today.

Agronomy: Seed and soil exhibits as well as possibly some fertilizer demonstrations

Animal Husbandry: Will show some of its beef cattle herd in a show as well as a meats display in the lab.

Dairy: A dairy cattle show with emphasis on some of the finest bulls in the state which are being used in artificial insemination work. Demonstrations will also be going on in the creamery on ice cream and butter manufacturing.

Entomology: Insect pests of South Carolina and also a beekeeping display.

Horticulture: Demonstrations on canning and exhibits at the greenhouse.

Pre-Forestry: Grafts on skin analysis.

Poultry: Methods of incubation as well as other exhibits not announced.

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PHONE 43377

Columbia, South Carolina



Agrarian Philosophy

By
The Editor



MAKE IT YOUR PUBLICATION

Last spring a group of students working thru various faculty members met and began the reorganization of The AGRARIAN, which had been dormant since prewar days. After much hard work and struggling through various discouragements which accompany the reorganization of any project, the first issue was published.

Because the majority of that staff was graduating, a new staff was appointed to take over in the fall. When September rolled around the new staff assembled and started work on the next issue. In these two issues that were published during the first semester, most of the technical kinks were ironed out and we were ready to settle down to a smooth running organization when what should happen but our editor who was under the accelerated wartime program graduated in February. For the third time in as many semesters a new editor was chosen and work was again begun.

Up until this issue The AGRARIAN has made great steps forward and gives promise of even greater success. First, however we must have cooperation in the form of more staff workers. Our staff as it now stands has been able to publish several issues but in June most of them will have graduated. This means that we must have a larger junior staff to fill their shoes.

In addition to editorial staff men, we also need advertising staff men, and also workers on the business and circulations staffs. We can easily have the best publication on the campus if more students will try out for the staff.

At the next meeting let's see a lot of you freshmen and sophomores as well as some more juniors and seniors so that The AGRARIAN will be a magazine of which we shall all have a part in publishing.

THE NEW LOOK

Spring is here, the flowers are blooming, the birds are singing, and the grass is beginning to sprout around Long Hall. At last the Ag campus is beginning to take on the new look. Shrubbery has been planted on the terraces around the west door and protecting fences have also been erected. The administration has done its part toward making the campus beautiful, so what are we the students going to do toward keeping it beautiful?

There are several ways that we can help. Remember that Mother's Day is just a few weeks away and of course Clemson is going to be its prettiest for that occasion. But in order for this to be possible there are certain things that the students must do. The little things from day to day are the ones that count such as not dropping paper on the ground, and remembering to take the long way around the new grass. These together with other little reminders to those who forget will certainly improve the looks of the Clemson campus.

ORCHIDS TO THE NEW "WORMS"

Congratulations to the sixteen new student members of Alpha Zeta and the two new faculty associate members. The student members are P. L. Benfield, York; L. F. Cato, Monetta; Ernest L. Corley, Saluda; Earl Chamness, Bennettsville; W. W. Gaston, Richburg; P. E. Gervais, Johns Island; F. L. Fitzsimmons, Hendersonville, N. C.; J. F. Hicks, York; W. H. Kennick, Chester; H. P. Lynn, Clemson; D. P. Rochester, Salem; S. T. Russell, Jamestown; J. S. Rodgers, Charleston; W. R. Traylor, Ridgeway; H. Z. Woodfin, Inman; and S. P. Young, Dalzell.

Also initiated were two faculty associate members—Dr. G. H. Collings, Professor of Agronomy; and Mr. D. W. Watkins, Director of the South Carolina Experiment Station.



Honey Crop Investigations

Show That State Produces Variety of Flavors

DAVID DUNAVAN

Associate Professor of Entomology

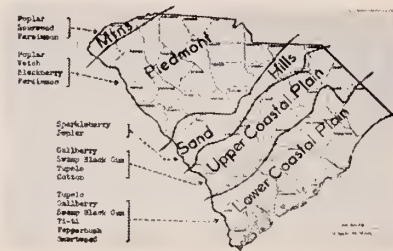
Beekeeping with its attending production of honey, one of the finest foods enjoyed by man, ranks among the oldest types of food production in South Carolina. Despite this fact, until very recent years no official investigations of the possibilities of beekeeping in the state had been made. However, about 1943 the increasing importance of beekeeping and of bees in the agricultural economy of the state was brought to the proper authorities and since that date several lines of investigations have been almost constantly in progress under sponsorship of the South Carolina Experiment Station.

One of the most fruitful lines of research has been that of the measurement of the honey crops in several areas of the state. The topography of the state is so varied and the range of climatic conditions so wide that a great variety of native nectar producing plants occurs within the confines of the states. It would be difficult to find another comparable area anywhere in the United States where a wider range of native plants of value to beekeeping exists. The accompanying map, Figure 1, will give some idea of the distribution of the more important nectar producing plants.

On the map are named only the plants which are classed as major honey plants; that is, plants from which appreciable amounts of surplus honey can be expected. Observations of the nectar-gathering activities of honeybees indicate that there are perhaps a hundred other species of plants in the state from which varying amounts of nectar are gathered. Some of these plants are, however, of great value to honeybees in enabling them to build their colony populations up to full strength in early spring or for merely furnishing enough honey for them to subsist through periods of dearth be-

tween major honey flows from more important honey plants.

A glance at the map will verify one of the most interesting aspects of beekeeping in South Carolina. This is the great variety of plants of value to beekeeping. Few of these are statewide in distribution and most of them are definitely limited to certain areas. Since the flavors, colors and other qualities of the honey from each of these plant sources are usually very distinctive and peculiar to each particular species of plant it will be realized that South Carolina literally has a honey



Map showing the principle honey producing sections of South Carolina.

to suit every palate. Thus, Sourwood honey from the mountains, with its delicious mild flavor has its following among those who appreciate really good things to eat and is so sought after that this honey seldom reaches markets far from the mountains where it is produced. Sparkleberry honey of the Sand Hill area has a flavor which consumers outside of this area sometimes have to acquire a liking for but which is considered very desirable in the area where it is produced. Pepperbush honey of the Lower Coastal Plain is a taste treat which probably deserves wider recognition. Tupelo, Gallberry, and the others also have their own flavors and other distinctive qualities.

Another glance at the map, this time at the names of the plants, will emphasize one of the unique characteristics of South Carolina honey in general. This is the fact that most of the important honey plants are native plants of the wilds rather than cultivated plants. Changes in cropping systems, crop rotations or other vagaries peculiar to agricultural areas have very little effect on the amount or quality of South Carolina honey. Of the major plants listed, only Vetch and Cotton are cultivated plants.

A question often asked by people unfamiliar with bees and beekeeping is, "How can a beekeeper be sure his honey is not a mixture from several species of plants"? In some cases this is difficult and when several species of plants are in bloom at the same time bees often gather nectar from some or all species. However, differences in blossoming dates usually make it a simple matter for beekeepers to separate one type of honey from another. For example, in the Coastal Plain, Tupelo trees are usually through blossoming in early spring by the time Gallberry bushes begin. While the two mentioned above are spring sources of honey, Pepperbush plants of the same area begin to bloom in late summer. Likewise in the Mountain area Sourwood opens its blossoms in late June when very few other plants are in bloom. More complete data on the seasonal distribution of honey flows in the several areas of the state can be found in the 59th Annual Report of the South Carolina Experiment Station published in September 1947.

Now a brief description of the methods used in securing information regarding honey production in the state will be in order. Reference has already been made to the fact that some species of plants are important sources of honey while others are of lesser importance. The

causes of such differences are in most cases unknown. However, from the standpoint of beekeeping and honey production it is very important to know the following facts regarding the honey plants of a given area: (1) What plants are important honey sources, and (2) what season of the year these plants yield honey.

To secure such information as this, scale hives (see Figure 2) have been operated in several areas of the state for the past two seasons. As will be seen in the illustration, a scale hive is merely a hive of bees placed on an ordinary warehouse scale so that periodic gains or losses in weight can be ascertained. Local beekeepers and others have rendered valuable assistance in recording daily gains in weight of these scale hives during honey flows.

Records of these scale hives have shown daily gains of three pounds per day on many occasions. For two consecutive days in early April 1945 a scale hive in Barnwell County showed a gain of six pounds per day. On April 4, 1945 a scale hive in Horry County made a gain of fourteen pounds, the largest gain of any day for the season. On other occasions scale hives, because of inclement weather or other less obvious causes, have failed to make any appreciable gains during a period when bees should normally produce a good crop of honey. To date, the greatest total crop of honey recorded on a scale hive in the state was a little over three hundred pounds produced in the Lower Coastal Plain in 1946. This consisted of the combined flows from Tupelo, Gallberry and Pepperbush and likely included also lesser amounts from other minor plant species. Some realization of what a pound of honey means in terms of bee energy may give us some appreciation of the industry and accomplishments of these small food producers. Of course, a pound of honey represents the combined labors of thousands of bees in the hive. However, if we reduce our thinking to one bee proportions we get a more realistic picture of what a pound of honey means in bee activity. Consider the fact that a bee evidently has to visit over a hundred blossoms in order to get one load of nectar and that this load is scarcely a good

sized drop. Further, this nectar is largely water which has to be evaporated as the nectar becomes honey. This one bee, in order to make the pound of finished honey single-handed, would have to work all day long 365 days per year for eight years and in so doing she would have to fly a distance equal to more than two complete round-the-world flights at the equator.* That is a pound of honey!

Careful observations in the field must be made during periods when scale hives are showing gains to determine what species of plants the bees are gathering nectar from. Weather conditions and other factors cause variations in the amount



Ordinary hive placed on a pair of warehouse scales to show periodic gains and losses.

of nectar secretion by the various species of plants from year to year so that as yet no reliable means of predicting the size of honey crop in any area has been possible. The present investigations will probably have to be continued for several years in order to give a true picture of the honey producing possibilities of the various areas of the state.

* Authority for such figures as these is Dr. O. W. Park of Iowa State College, one of the foremost investigators of bee behavior.

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Sesame Opens New Horizons to Farmers

State Farmers Will Have a Successful Cash Crop
When Current Research at Clemson is Completed

Maybe you scoff at the magic phrases of the ancients in the Arabians Nights, but J. A. Martin, Assistant Horticulturist at Clemson, has been hard at work for over 4 years attempting to change the legendary "Open Sesame" of Ali Babi and the cave of the 40 thieves to a more practical twentieth-century "Shut-Sesame."

Sesame, or "Benne" as it is more commonly called, is an annual herb which has been used in India and China as a food and oilseed plant since 450 B. C.

Although Benne is high in valuable oil content, its current production in this country is limited by uneven ripening and seed shattering characteristics which necessitate hand harvesting. If new determinate growth or non-shattering varieties can be developed which are suited to mechanical harvesting, Benne may well become an important cash and feed crop in the South. Mr. Martin

LEE DeYOUNG,
Horticulture 1949

has been breeding and experimenting with Sesame since 1943 in an effort to "Shut Sesame", bring about even ripening, formulate better cultural practices, and develop other desired characteristics such as high yields and high oil content.

Benne is no stranger to many South Carolina farmers, having been planted by them for many years along field margins and in the skips as a bird feed. Growing erect and to a height of 2 to 5 feet, it begins flowering when 2 or 3 months old and produces numerous oblong seed capsules along the stalk. These 2, 4 or 8-valve capsules contain 80 to 84 seeds arranged in 4 rows which yield 35 percent to 56 percent of an edible oil.

Working with approximately 300 varieties selected from many foreign countries, Mr. Martin has obtained

many encouraging results in breeding Benne varieties which will be adaptable to commercial production in this country. Yield tests, row spacing tests and harvesting studies have been conducted as well as experiments toward developing non-shattering types which ripen evenly. During the 1947 growing season yield tests were conducted at Clemson, Blackville, Florence and Charleston. These tests showed that Benne is well adapted to South Carolina climates and soils, thrives prolifically, and produces large yields of the desired high oil content seed. Cultivation requirements are the same as those for cotton, therefore South Carolina farmers should experience no difficulty in growing Benne successfully. The experiments also showed that some varieties of the hardy herb possess disease and insect resistance and are adapted to a wide range of soil types.

Benne is not a newly discovered crop however. People have been cultivating Benne for thousands of years—the Egyptians in the Nile valley were using Benne for food and to prepare cosmetics when Pharaoh's daughter found Moses in the rushes. Since then, Benne has been a friend of man the world over and has been used for many practical purposes. The people of South America use Benne in a refreshing drink called "Horchata", in Asia it is used in perfumes and as an illuminant. Benne seed are used in the decoration of bread and cookies, while the oil, usually pale yellow when refined, is used in cooking and salad oils and as a component in the manufacture of soaps, shortenings and some forms of margarine. It has also been discovered that penicillin may be taken orally if it is enclosed in the oil. The Benne plant itself is noted as an ornamental plant in gardens and the

One of the typical varieties of sesame being grown at Clemson.



Continued on page 22



Farm-Eating Soil Erosion Can Be Tamed

Soil erosion mutilated 500,000 acres of farm land last year! Even fields it failed to chew into gullies and ditches were often bled of their fertility. Unless it is curbed, this soil-hungry monster will cripple American farm production by gobbling more and more of our precious topsoil.

Fortunately, there are ways to control this spoiler of the land. Better crop rotations, contour farming, strip-cropping, and many other soil-saving practices have been developed by our agricultural experts. John Deere and other farm implement manufacturers are producing

the machines that make the application of these new methods both practical and profitable.

It will take a lot of telling, explaining, and demonstrating, however, to acquaint farmers with the full possibilities of these soil-saving methods. That's why you can serve your neighbors and help to make your own future more secure by adding soil conservation to your stock in trade, and joining forces with the soil erosion tamers in your community.

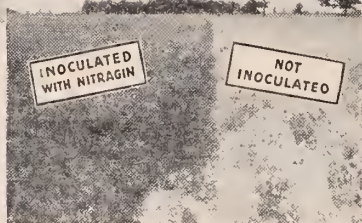
John  **Deere**

MOLINE • ILLINOIS

FIRST FOR 50 YEARS...



● NITRAGIN inoculation, the first commercially produced legume bacteria, was registered in 1898. Millions of bushels of alfalfa, soybeans, clovers and other legume seed are inoculated with NITRAGIN every year. There is good reason for this. Farmers know that inoculation increases yields and improves the quality of their legumes. They know that NITRAGIN'S bacteria strains have been continually improved by laboratory and field-testing. Legumes grown for hay and seed show healthier growth... have added resistance to drought and winterkill when inoculated with NITRAGIN. Leading seedsmen everywhere sell NITRAGIN... the inoculant in the yellow can. Be sure to get it in the correct culture for the legumes you grow.



Note contrast above. Results like these are common in plot-testing of NITRAGIN inoculation. Higher protein content... improved soil fertility and other values of inoculated legumes do not show in these photographs.



Mixing NITRAGIN with legume seed is as easy as stirring up a batch of feed. Just moisten inoculant... spread over seed and stir. The NITRAGIN bacteria cling to the seeds... ready to work for you as soon as seed is planted.

THE NITRAGIN CO. INC. • 3929 N. BOOTH ST. • MILWAUKEE, WIS.

VOCATIONAL OPPORTUNITIES

(continued from page 3)

tive ability can do. A salesman for a large company said the difference between average people and top people as he had observed it could be summed up in the three words "and then some". The top people did

what was expected of them **and then some**. They were thoughtful, considerate, and kind, **and then some**. They met their obligations squarely **and then some**. It can also be said that the fellow who is fired with enthusiasm for his work is never fired by his boss.

SAFETY AT HOME AND ON FARM

(continued from page 5)

11. Never refuel tractor while engine is running or extremely hot.

12. When tractor is attached to a power implement, be sure that all power-line shielding is in place.

Animals are next in line in taking their toll of farm lives. Farm animals must be understood, respected, and handled with care. Animals on the farm can be man's friends and helpers, his producers and providers, but when irritated or frightened they can be very destructive.

Farm accidents have become so common that their damage is being overlooked by the average farmer of today. The accidents are of two different natures, avoidable and unavoidable. It is the avoidable accidents that we should be more interested in. We must devote more of our time to precautionary measures, and to the instruction of farm labor on safety rules to be enacted on the farm.

SESAME OPENS NEW HORIZONS

(continued from page 20)

leaves have medicinal value when soaked in cold water.

However, it is the oil from Benne seed, which compares favorably with cottonseed oil, that is coming in for the most attention and is constantly being put to more new uses. The use of this oil in candies, ice cream, confectionaries and as a cooking oil has created a demand far above present production in this country. Cottonseed and peanut oil mills can extract the oil, and at least one South Carolina mill has already stated it could handle tons of the seed.

The waste which remains after the oil has been extracted can be pressed into cakes and used as stock feed. It has high nutritional value and contains about 45 percent protein, 95 percent of which is digestible. It has been found especially nutritious for cows, hogs and chickens. This cake is also valuable as fertilizer and contains large quantities of plant nutrients.

Benne may seem an insignificant little fellow to South Carolina farmers now, but if Mr. Martin can teach him to keep his mouth shut until the modern combine jolts him, he's likely to take on the significance of a gold strike to a forty-niner.

ROLLED HAY.... The Bale of the Future



A weather-resistant *rolled* bale with leaves locked inside! That is rolled hay... a bale that for the first time sheds rain like a thatched roof. Once your hay is in the rolled bale, you breathe easy. It's safe from sudden showers. The bale unrolls in a wide, soft, leafy mat, appetizing to livestock; can also be fed whole in the feedrack without waste.

The rolled bale represents a turning-point in haymaking for every family farm. Now you can package your *own* hay—with a home-owned one-man field baler, priced to fit the individual farm.

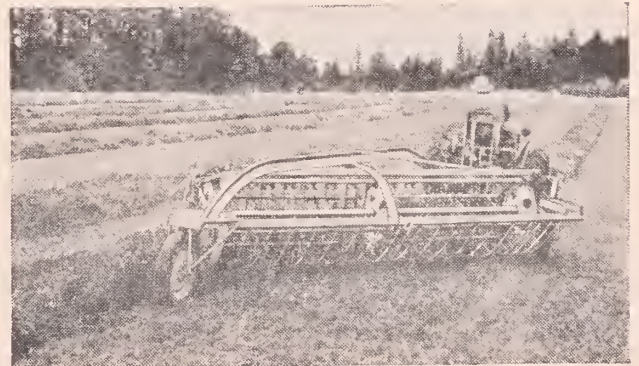
If hay could be trademarked, Allis-Chalmers would proudly place its name on the *Rolled Bale*.



The **ROTO-BALER** ... Turning Point in Hay History

When blossoms say "ready" and the weather is right, that's when a home-owned Roto-Baler pays off. Hay or straw is automatically wrapped with ordinary binder twine costing less than wire or heavy bale twine.

The Roto-Baler packages hay more compactly... in sturdy rolled bales that will not buckle... bales that store in less space and are convenient to handle and feed. Thousands of farmers from coast to coast are already making hay this better way... and like it.



TRACTOR RAKE... the first side-delivery rake and tedder really engineered for tractor power. Power take-off driven, it has 2 forward reel speeds and 1 reverse (for tedding). Ball and roller bearings exclusively. Controlled steering assures straight windrows.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Vocational Education Started

In Smith-Hughes Act and Spread Over Nation

The cause for the development of the movement for a vocational training system may be said to have been the decay of apprenticeship; the disappearance of industries from the home and their transfer to the factory where the youth is never admitted and is therefore unable to learn its processes; the impracticality of the public schools system which in the grades has been supplying the bare fundamentals and in the high schools a cultural education, thus really not preparing the boy or girl to earn a living; and the effect of the untrained and inefficient man upon economic and social problems. Without question much of our poverty is due to unpreparedness for some kind of a job on the part of a large number of young men and women. They have not been made producers. They have learned no skills and therefore do not fit in anywhere.

Objections To The Proposed Plan

There were objections to the movement for the establishment of public vocational training schools, and these came from two main sources. It was on the part of some educators that a public system of vocational training would direct many boys and girls into the trades and industries who would in the absence of such a system continue their study in the field of liberal education. The plan, it argued, would actually deprive many boys and girls of a liberal education, and the institutions of higher learning would suffer because of a decreased proportion of the boys and girls in the public schools seeking entrance to colleges and universities.

At this time the fact that 89 percent of the boys and girls in the public schools do not go to higher schools and that 90 percent of those that finish high school do not seek admission to the university was overlooked. Therefore, it would seem

By **R. V. BOGGS**
Vocational Ag. Education 1949

that a public system of vocational training made available to all those who wanted it would in fact encourage and greatly stimulate higher education.

Another objection to the Smith-Hughes Act or to a national system of vocational training has also been made on the ground of giving the Federal Government too much control over education. It was pointed out that if this should come about the people could at any time exercise their sovereign rights and reduce the degree of supervision. Naturally when the Federal Government gives the states funds it must at least have some supervision over how it is to be spent.

The method of financing, that of making a grant by the Federal Government and requiring the state to match it, is also objected to by some for the reason that it might hamper the educational development of the state.

Recent Developments of the Movements

In 1878 the National Grange adopted a resolution demanding the teaching of agriculture in the elementary schools. Rapid progress was made after 1906. A number of societies promoting industrial education sprang up. Massachusetts appointed a commission on Industrial Education. The National Society for the promotion of Industrial Education was especially active in promoting the establishment of a public system of vocational training.

The development in Congress was gradual. The subject of Vocational Education more or less seriously engaged the attention of our Federal lawmakers for almost a decade before the enactment of the Smith-Hughes law.

Mention should be made of the Davis Bill, which was followed by the Davis-Dolliver Bill. Credit must be given to these men for bringing the question to the attention of Congressmen and for making the passing of the law possible. In 1912 Senator Page of Vermont, to whom accrued the benefits of the previous bills, introduced a bill to provide the necessary funds and organizations of a vocational training system. By the terms of this bill it was proposed that the United States co-operate with the states in encouraging instruction in agriculture, the trades and industries, and home economics in secondary schools; in maintaining instructions in these vocational subjects in state normal schools; in maintaining extension department in State Colleges of Agriculture and the mechanic arts; and to appropriate money and to regulate its expenditure. It will be noted that this bill included in the plan to establish vocational training, a system of extension service. The extension feature, subjected of course to considerable revision was taken up by Congress in the Smith-Lever Bill and enacted into law in 1914, with the part that relates to vocational training in agriculture, home economics, and the trades and industries, was embodied in a revised form in another bill known as the Smith-Hughes Bill, which was passed by Congress in 1917.

The Smith-Hughes Bill was passed February 23, 1917. Its objects:

"An act to provide for the promotion of vocational education; to provide for cooperation with the states in the promotion of such education in agriculture and trades and industries; to provide for cooperation with the states in the preparation of teachers of vocational subjects; and

(continued on page 26)



THERE'S HEAVY WORK in the months ahead!

...and Esso Farm Products help you do it!

From mule-drawn wagons to fuel-powered tractors...these next few months will see farm equipment working long, hard hours...plowing, planting and protecting the bumper crops that America has promised to produce for herself and for the world.

Crop production depends pretty much on equipment and livestock protection...and whether a farmer needs axle-

grease, livestock spray, weed-killer, fuels and lubricants—or any of a dozen other farming aids—there's a specially developed and proved Esso Farm Product to meet that need.

For information on the dependable, *high-quality* Esso Farm Products...they'll help you do a better job of farming!...make it a point to call on your local Esso Distributor.

You can depend on



FARM PRODUCTS

ESSO STANDARD OIL COMPANY

AGRICULTURAL STUDENTS ARE OFFERED FREE COPIES of the regularly published Esso FARM NEWS...the rotogravure magazine that contains valuable farming articles and many modern-method hints for better farming! Please write: Esso Farm News, Room 777A, 15 West 51st St., New York 19, N. Y.

SNOOPIN' AMONG THE AGGIES

The brief incidents that make life cheerful are often overlooked by unconcerned parties. Lately, we have become quite concerned with the delightful escapades of the boys that hail from the farmlands of South Carolina. We think that Clemson's true Country Gentlemen, the elite farm group, have been overlooked by many a social register. Note: This column is by no means a social register, as you will discover, but a few selected words to let you enjoy with us, the hereto unprinted subject matter about the students and professors of The School of Agriculture.

* * *

Producer-director R. E. "Frog" Ware has declined all reports that Hollywood was going to nab him before the end of this semester. Professor Ware just wears those dark glasses because of the sun, you know.

VOCATIONAL EDUCATION

(continued from page 24)

to appropriate money and regulate its expenditure."

Sections 2, 3, and 4 of the act provide for appropriation of funds for three different purposes. In cooperation with the states it provides for the payment of salaries of teachers, supervisors and the directors of agriculture subjects. The same provision is made for teachers of trade, home economics, and industrial subjects; and finally the funds are to be available for the training of teachers of agriculture, trade, industrial and economics subjects. The whole plan of the act would be to no avail if it did not provide for the training of teachers in these subjects. The practical and the theoretical aspects of the subjects have been mastered by the prospective teacher of these subjects to accomplish the purpose of the act. In agriculture and home economics as well as in some fields of the trades and industry the colleges turn out young men and women who have the foundational training necessary to teach these subjects, but who must take work in the theory and practice of teaching before they can hope to be successful as teachers.

"Stud" Klettner and Carl Lowder plan to motor to Miami this summer in their new convertible Cadillac. Where is the money coming from? Don't be in the dark any longer, fella' — from the 1948 C.D.A. "take" of course ! ! !

* * *

Henry Black is now taking barbell exercises. Mr. Hanckel's little boy, "Sonny", lends them to him for the price of an ice cream cone each hour. Henry's exercises are part of a plot to "get Zeke Hiott", who took his girly at the last Coker dance. Anybody know what "The Zeke" plans to do about it?

* * *

"Fog" Booth recently joined the Young Ladies Mid-Week Tea Sorority of Converse College. Between sips, "Fog" lectures to them on the advantages of having a farmer for a husband. Maybe we could get him to speak at the "Y" on Sunday night when all the local "yard engines" are present.

* * *

Is it so that "Mumbles" Walker of Manning, plans to lecture to the student body of the "Zoo" on "How a Furman gal won a Clemson's man's heart"? Just can't figure if he's talking about himself or "I'm on the Tiger Staff" Reynolds.

They tell this on Dr. Collings. A group of students, assembled in front of the post office, were telling a poor freshman about the wrath of "Lord" Collings. Their conversation went like this. "You don't stand even a slim chance in agriculture unless you make it a point to speak to 'The Lord' whenever and wherever you see him." This and other remarks had made the freshman about as frightened as a freshman gets — and brother, when you get that way, you're panic stricken. Along then, out of nowhere, came Dr. Collings. The freshman, noticing Dr. Collings, became stone-stiff with fear. What hair he had stood on end. The others, becoming aware of the delicate situation, held their breath. It seemed like hours before the freshman stammered, "Hello God".

* * *

Have you noticed the left side of "Earthquake" King's face. We have often wondered why the left eye is always red on Monday mornings? On his "gun run", whatever that means, between LaGrange, Ga., and Clemson he keeps this portion of his face exposed to the cool Georgia air. Now, just why does he do this?

* * *

'Guess that's about it for this time. Oh, yes, Professor "Strib" Stribling wishes us to announce that he is NOT a candidate for the Presidency in the coming Democratic Convention.

MAYBANK FERTILIZER CORPORATION

Manufacturers of
High Grade Fertilizers
FOR 32 YEARS

Charleston, South Carolina

Soil Must Be Productive or We Can't Prosper

International Harvester has long subscribed to the principle that if there is to be a "tomorrow" for both agriculture and industry, soil conservation practices must be carried out today.

To promote this modern farming, the company last fall held the fourth and fifth of a nation-wide series of In-Service Training Courses on farm machinery for Soil Conservation Service personnel. They were staged in Region Five, Lincoln, Nebr., and Region One, Hershey, Pa.

Thousands of soil conservationists, agronomists, county agents, farmers and farm equipment dealers attended these meetings to watch machines fight "land on the move." The accompanying illustrations show how problems of terrace-building, gully control and retaining of top soils, among others, were mastered.

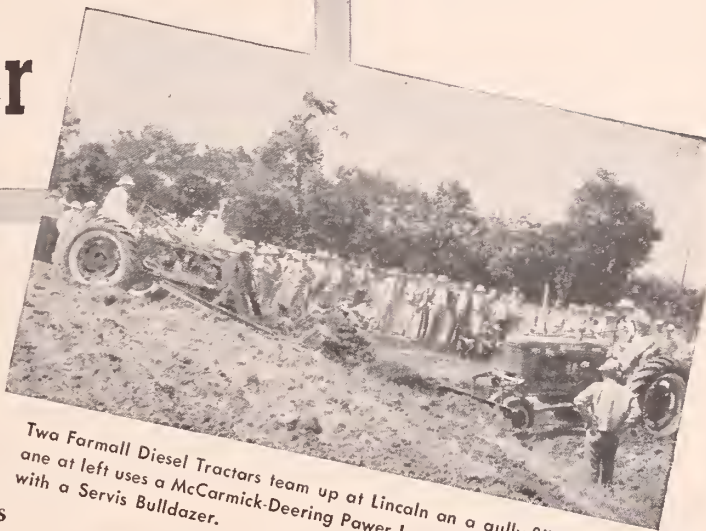
These men, supported by International Harvester and the IH Dealer in your home town, form an army that is waging a great peace-time battle: the conservation of the land, our greatest heritage. We encourage everyone who daily lives and works with American farmers to assist in the program of soil and water conservation.

If the farmer is to prosper—and with him, the rest of the nation—*soil must be made and kept productive!*



Want to know more about soil conservation? Then write for this FREE booklet titled "Let's Practice Soil Conservation." Address Consumer Relations Dept., International Harvester Company, 180 N. Michigan Avenue, Chicago 1, Illinois.

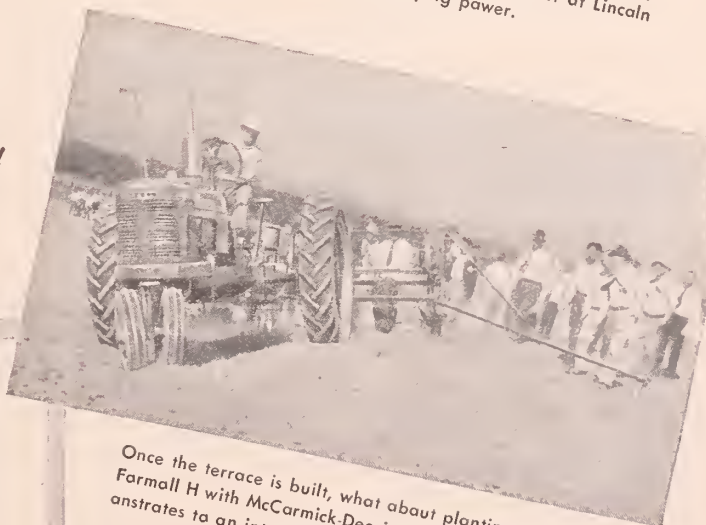
Let's Practice
SOIL CONSERVATION
FOR A PERMANENT AGRICULTURE



Two Farmall Diesel Tractors team up at Lincoln on a gully-filling job. The one at left uses a McCormick-Deering Power Loader; the other is equipped with a Servis Bulldozer.



Terrace-building and creation of drainage ditches can be done in a hurry with a Servis Whirlwind Terracer. This project was carried out at Lincoln with a McCormick-Deering WD-9 Tractor supplying power.



Once the terrace is built, what about planting on its side? This Farmall H with McCormick-Deering Beet and Bean Planter demonstrates to an interested group at Hershey just how it's done.

AMONG OUR ALUMNI

1918

Thomas L. Ayers, V.A.E., is Chief of the Program Planning Division of the Agricultural Conservation Branch of the Production and Marketing Administration, Washington, D. C.

George E. Freeman, V.A.E., is State Director of Vocational Education, Nashville, Tenn.

1920

A. L. DuRant, A.H., is South Carolina Extension Livestock Specialist and is at present living at Florence.

1921

Dr. Julian Miller, Hort., is head of all Horticulture Research at Louisiana State University.

1927

R. D. Anderson, V.A.E., is State Supervisor of Agricultural Education, State Department of Education, Columbia, S. C.

Claude E. McLeod, Hort., is now truck farming in Seabrook, Beaufort County.

1930

Frank C. Bouknight, Ag. Ec., is working with the USDA, Production and Marketing Administration as a specialist in cotton classing. His home is Jackson, Mississippi.

Dr. George H. Wise, Dairying, is Associate Professor of Dairying at Iowa State College, Ames, Iowa.

1931

Dr. William C. Barnes, Hort., is now Superintendent of the South Carolina Truck Experiment Station at Charleston, S. C.

Ralph H. McGee, Dairying, is Plant Superintendent at Coburg Dairy, Charleston, S. C.

M. C. Rochester, Ag. Ec., is Leader in Agricultural Economics with the Agricultural Extension Service at Clemson. Dr. Rochester holds an M.S. degree from the University of Florida and a Ph.D. degree from the University of Wisconsin.

T. T. Traywick, A.H., is a breeder of Berkshire hogs and Angus cattle at Cope, S. C.

1932

Dr. Fred D. Cochran, Hort., is in charge of Vegetable Research at North Carolina State College, in Raleigh, N. C.

Samuel D. Watson, Hort., is a nurseryman and pecan grower at Orangeburg, S. C.

1933

John L. Fulmer, Ag. Ec., is doing research work and teaching Economics at the University of Virginia. Dr. Fulmer has received graduate degrees from Cornell and the University of Virginia.

T. P. McKellar, Dairying, is part owner of Mapleview Dairy, Ashboro, N. C.

O. Romaine Smith, Ag. Ec., is District 4-H Club Agent for the South Carolina Extension Service and is located in Aiken.

1934

Dr. Carlyle N. Clayton, Hort., is a plant pathologist at North Carolina State College at Raleigh, N. C.

1935

D. W. Anderson, A.H., buys livestock for the White Provision Company and at present he is located in Atlanta, Georgia.

W. M. Dillard, Ag. Ec., is coach at the Anderson High School and part owner of a sporting goods store in Anderson.

W. B. McConnell, Dairying, is production Manager at Foremost Dairies in Miami, Florida.

1936

D. E. Crawford, Ag. Ec., is Assistant Agricultural Economist on the staff of the South Carolina Experiment Station at Clemson.

R. L. Jones, A.H., is managing the Mount Pleasant Plantation at Andrews, S. C.

D. A. Shelley, A.H., is County Agent of Barnwell County.

1937

E. M. Alexander, Ag. Ec., is Deputy Collector of Internal Revenue for the U. S. Treasury Department and is located in Chester.

J. M. Jeter, A.H., makes his home in Union, S. C., and is Field Agent for the Guernsey Breeders' Association.

1938

J. C. Shelley, A.H., works for the Allied Feed Mills of Columbia.

A. V. Bethea, Ag. Ec., operates a farm and other business enterprises at Dillon, S. C.

1939

Charles M. Aull, Ag. Ec., is Chief of the Rehabilitation Advisory Unit of the Veteran's Administration in Louisville, Kentucky. He received his Master's degree from the University of Kentucky.

T. E. Bell, Jr., A.H., is buying livestock for Kingan and Company of Orangeburg.

John F. Brailsford, Hort., is a nursery owner and farmer at Orangeburg, S. C.

Roy J. Ferree, Hort., is Extension Horticulturist with the South Carolina Extension Service and is located at Spartanburg, S. C.

J. S. Baskin made the Army his career and now holds the rank of major. He is now at Fort Benning, Ga. where he is engaged in writing texts for ROTC and National Guard Training.

F. G. Dobbins, after being connected with the Soil Conservation Service in Columbia for a number of years, has returned to Townville and is farming there.

W. J. Oates holds the position of Associate Agricultural Engineer at Oklahoma A. & M. College in Stillwater, Okla.

1941

J. C. P. Agnew is farming at Anderson and is also Secretary-Treasurer of the Anderson Production Credit Association.

The Coakley twins are both captains in the Army. George is stationed at Clemson on the military staff of the college and F. H. is Historical Editor in National Archives at Washington, D. C.

C. D. Cannon is Assistant Sales Manager at Coker Pedigreed Seed Co., in Hartsville.

T. V. Wilson is graduate assistant at Purdue University, Lafayette, Indiana.

L. C. Hammond was married recently to an Iowa girl where he is in graduate school.

1942

J. D. Dusenbury, Ag. Ec., lives in Florence where he is farming. Julian is State President of the Disabled Veterans Association.

1943

Charles B. Fellers, Ag. Ec., is sales representative for the American Hospital Corporation with headquarters in Charlotte, North Carolina.



EASY MONEY DEPARTMENT



Forget the principle of the thing—this is money! That's right—legal tender . . . in folding quantities . . . as high as fifteen bucks—that's what Pepsi-Cola Company pays for gags and such-like you send in and we print. Procedure? Simple—send your stuff, marked with your name, address, school and class, to Easy Money Dept., Pepsi-Cola Co., Box A, Long Island City, N. Y. All contributions become the

property of Pepsi-Cola Co. We pay only for those we print.

Will getting "Pepsi-Cola" into your gag hurt its chances? Don't be naive, chums. We like it. So, if you should wind up with a rejection slip clutched in your hot little fist, that won't be the reason. Well, don't just sit there! Pick up that pencil—get your stuff started now. There's Easy Money waiting!

LITTLE MORON CORNER

Here's the gag that won a M. M. (Master Moron) degree—and a fast two bucks—for Ben Orloff, of Univ. of North Carolina, in the November contest:

Our minor-league moron, Mortimer, caused considerable furore in local circles by entering one of our better bistros and calling for a Pepsi-Cola. When served, he proceeded to plug it down with not one, but six, straws. Questioned as to his motives, Mortimer carefully removed all six straws from his mouth and replied with considerable hauteur: "So I can drink six times as much Pepsi, natch!"

Earle S. Schlegel of Lehigh Univ. also came up with two bucks for his moron gag. Why don't you get on the gray train? Two bucks each for every moron joke we buy.

HE-SHE GAGS

Put one and one together—and you get a He-She gag. Three bucks each to Duane O. McDowell of So. Dakota State College; Albert M. Dredge of Duquesne Univ.; Emmett Carmody of Manhattan College; and Alfred Shapiro of New York Univ., respectively, for these specimens:

She: And what position do you play on the football team?

He: Oh, sort of crouched and bent over.

She: Why don't you park the car by this sign?

He: You're not allowed to park here.

She: Don't be silly. The sign says "Fine for Parking"!

He: Your eyes sparkle like Pepsi-Cola.

She: Tell me more. I drink it up.

She Seot: Santly, 'tis a sad loss you've had in the death of your wife.

He Seot: Aye, 'tis that. 'Twas just a week ago the doctor told her to dilute her medicine in Pepsi-Cola, and she hadna' time to take but half the bottle.

Current quotation on these is \$3 each for any we buy. Sure, but everything's over-priced these days.

EXTRA ADDED ATTRACTION

At the end of the year, we're going to review all the stuff we've bought, and the item we think was best of all is going to get an extra

\$100.00

— DAFFY DEFINITIONS —

We're not just sure who's daffy—but we sent one frog apiece to Don McCauley, Baylor Univ.; Edward Whitaker, Boston Univ.; Joy Duwall, Univ. of Chicago; Charles R. Meissner, Jr., Lehigh Univ.; and James O. Snider, Baylor Univ., for these gems:

Lipstick—something which adds color and flavor to the old pastime.

Controversy—one Pepsi—two people.

Worm—a caterpillar with a shave.

Rival—the guy who gives your girl a Pepsi.

Steam—water gone crazy over the heat.

So we're subsidizing lunacy. Okay—but it's still a buck apiece for any of these we buy.

GET FUNNY...WIN MONEY...WRITE A TITLE



TOM HENDERSON

Ever play "pin the tail on the donkey?" Well, this is pretty much the same idea—and never mind the obvious cracks. \$5 each for the best captions. Or send in your own idea for a cartoon. \$10 for just the idea . . . \$15 if you draw it . . . if we buy it.

Here's how we split the take for cartoon drawings, ideas and captions in the November contest: \$15 each to Jay Gluck of Berkeley, Calif. and Herbert John Brammeier, Jr. of St. Louis Univ.; \$10 to H. Dick Clarke of Univ. of Oklahoma; and \$5 each to Virgil Daniel of George Washington Univ., Frances Charlton of William and Mary College, and Sidney B. Flynn of St. Louis Univ.

ALL THESE STARS APPEAR
IN DAVID O. SELZNICK'S PRODUCTION
"THE PARADINE CASE"
DIRECTED BY ALFRED HITCHCOCK

CHARLES
COBURN

ANN
TODD

ETHEL
BARRYMORE

LOUIS
JOURDAN



WITH THE STARS
IT'S CHESTERFIELD

BECAUSE **A** ALWAYS Milder
B BETTER TASTING
C COOLER SMOKING

THE RIGHT COMBINATION...
WORLD'S BEST TOBACCOS

ALWAYS BUY

CHESTERFIELD